

ASSP

# TIMING EXTRACTION FILTER (50 to 300MHz)

## F4 SERIES

### ■ DESCRIPTION

The F4 series are timing extraction filter used in the high-grade digital transmission equipment like wide-band ISDN. The F4 series uses a single lithium tantalate piezoelectric crystal ( $\text{LiTaO}_3$ ) that has large electromechanical coupling coefficient, and a unique SAW resonator. That provides wide bandwidths, insertion loss, and exceptional stability in VHF band until 300MHz.

### ■ FEATURES

- Wide frequency range: 50 to 300MHz
- Wide band width: 0.3 to 1.0%
- Low insertion loss: 6dB or less
- Excellent temperature characteristics:  
 $\pm 200$  ppm or less (0 to 60°C)
- No adjustment is required due to small frequency deviation:  
 $\Delta f_o < \pm 500$ ppm
- High reliable hermetically sealed package
- Small type, and compatible with 14-pin DIP IC

### ■ PACKAGE



14-pin DIP size metal case

# F4 SERIES

## ■ PIN ASSIGNMENT

Pin number	Pin name	Description
1	IN	Input pin
7	GND	Ground pin
8	NC	No connection
14	OUT	Output pin

(BOTTOM VIEW)

## ■ MAXIMUM RATINGS

Item	Symbol	Rating	Unit
Operating temperature	Ta	-20 to 80	°C
Storage temperature	Tstg	-30 to 80	°C
Insulation resistance	IR	100 (100V DC)	MΩ
Frequency range	—	50 to 300	MHz

## ■ RECOMMENDED OPERATING CONDITIONS

Item	Symbol	Rating	Unit
Operating temperature	Ta	0 to 70	°C

## ■ STANDARD FREQUENCIES

Frequency	Application	Part number
51.84MHz	Wide band ISDN	FAR-F4DA-51M840-G201
97.728MHz	Japanese fourth group	FAR-F4DA-97M728-G201
155.52MHz	Wideband ISDN	FAR-F4DA-155M52-G201

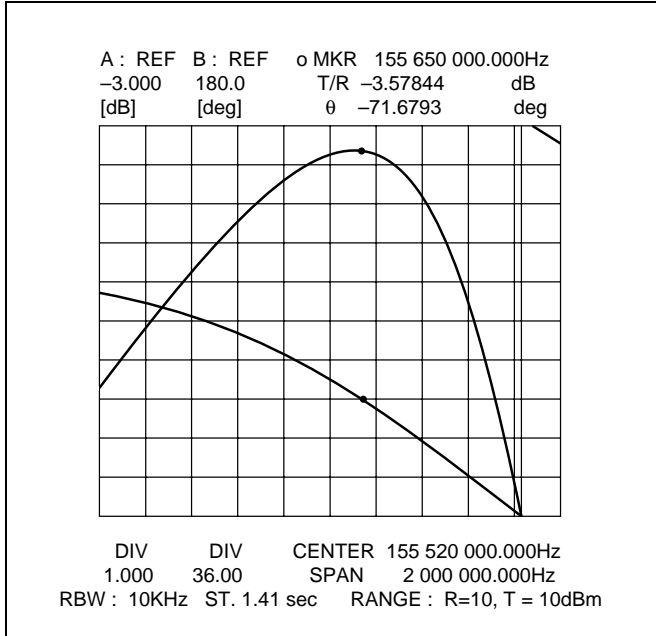
## ■ ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Rated value			Unit	Remarks
			Min.	Typ.	Max.		
Frequency deviation	$\Delta f_0$	—	-500	—	+500	ppm	$f_0$ standard
Load Q	Q	—	100	—	333	—	
Insertion loss	IL	—	—	—	6	dB	
Stop band attenuation	A <sub>OUT</sub>	$f_0 \pm 10\text{MHz}$	15	—	—	dB	
Frequency temperature stability	$\Delta f (T_a)$	—	-300	—	+300	ppm	25°C standard Ta = 0 to 70°C
Terminate impedance	Z	—	10	—	50	Ω	

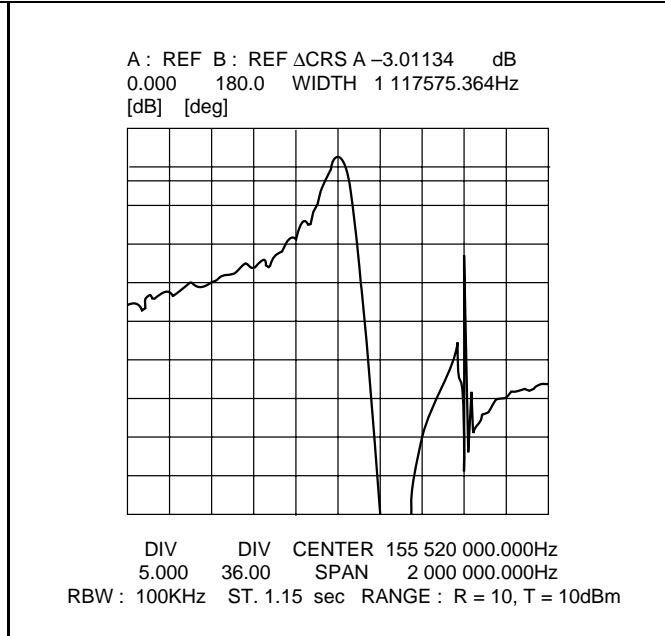
## CHARACTERISTICS EXAMPLE

### 155.52MHz example

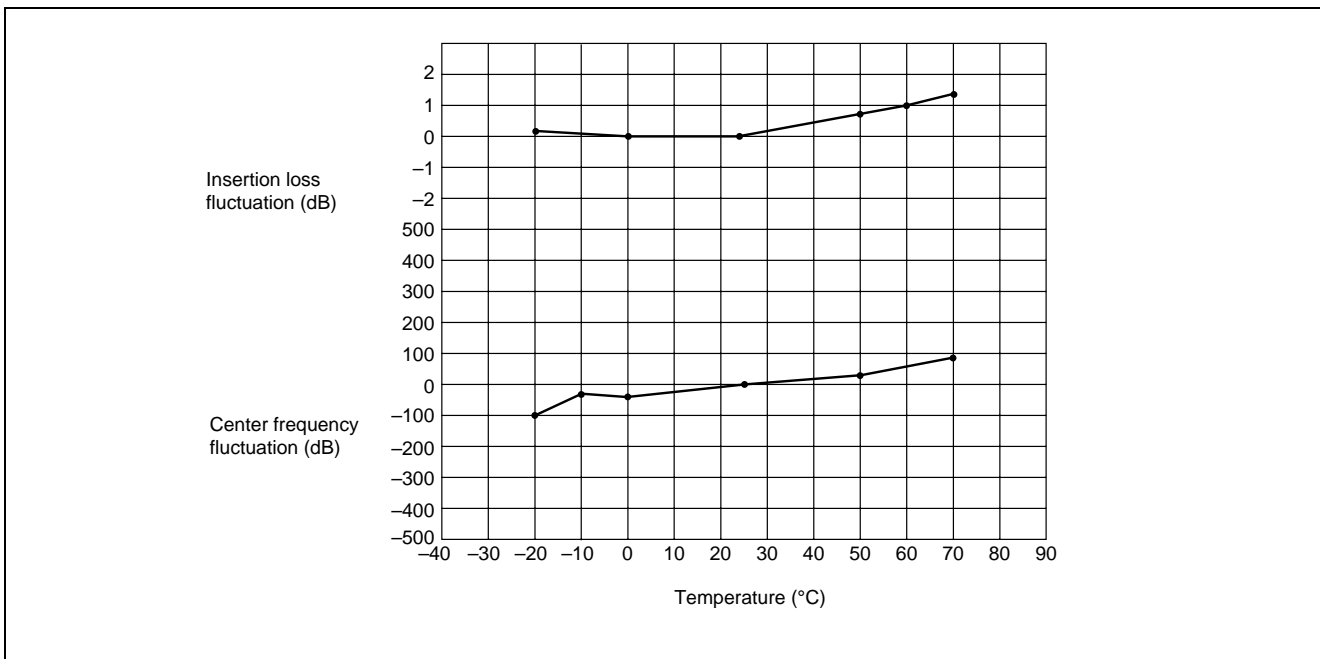
Pass band characteristic



Stop band characteristic

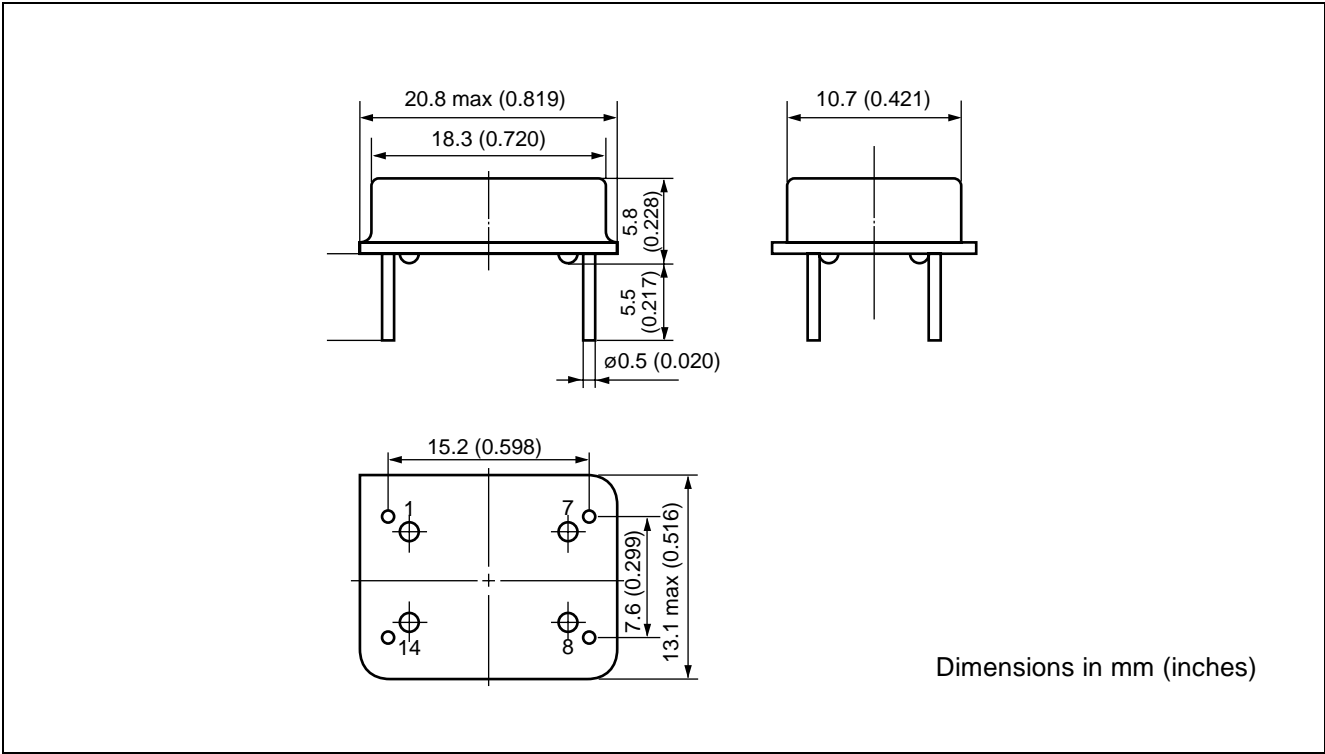


Temperature characteristic





## ■ DIMENSIONS



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